AMENDMENTS TO THE SPECIFICATION

On page 1, line 1, replace the title of the invention with the following:

Capillary Array Electrophoresis Apparatus ~~and Electrophoresis Method~~

On page 13, replace the paragraph beginning at line 3 with the following:

Fig. 2 shows an overview of an electrophoresis apparatus according to the present invention. At one end of a capillary array 1 an electrode (a specimen introduction terminal) 2 is formed so as to permit application of a negative voltage. When injecting DNA, the cathode 2 immersed into a solution containing DNA sample and further when performing electrophoresis of the injected sample, the cathode 2 is immersed into a butter solution 3 and a predetermined voltage is applied thereto. At the other end of the capillary 1 a connection portion 5 is formed which leads to a gel block 4 functioning as a means for injecting gel serving as an electrophoresis medium into capillaries. When charging gel serving as an electrophoresis medium into the capillaries, a valve 6 is closed and a syringe 10 is pressed down, thereby, the gel within the syringe 10 is injected into the capillary array 1, when performing an electrophoresis, the valve 6 is opened and a predetermined voltage is applied between the cathode 3 immersed in the buffer and an earth electrode 7 immersed in another buffer 12. The capillary array 1 is kept at a constant temperature by means of a gas circulation type thermostatic oven 11.

On page 13, replace the paragraph beginning at line 26 with the following:

Figs. 3A through 3C show skeleton diagrams near a detection portion (8 in Fig. 2) of a capillary array and a laser beam introduction route. Since elements such as a shutter and a filter used for laser beam are well known in the field concerned and are not a direct object of the present invention, the illustration thereof is omitted for the sake of simplicity.

Fig. 3A is a schematic front view of a major portion of an electrophoresis apparatus according to the present embodiment, Fig. 3B is an upper side view of the detection portion of the capillary array and Fig. 3C is a plane view of a pin hole plate which is attached at an emission port of a laser beam source. A capillary array is formed by arranging 16 pieces of capillaries 21 on an array stand 20 and by securing the same thereon. Hereinafter, a plane face formed by the center axes of 16 pieces of capillaries 21 on the array stand 20 and an imaginary plane face formed by extending the former plane face over the entire space are called an array face 22. Further, an imaginary straight line which is in the array face is perpendicular to 16 pieces of capillary axes and passes through the center of the detection portion is called a standard optical axis 28 (see Fig. 3A). The capillaries are made of a quartz glass tube covered by a polymer thin film, however, at the detection portion the polymer covering is removed and the quartz glass is exposed. The inner diameter/outer diameter ratio of the quartz glass tube is 50/320μm and the outer diameter of the capillary including the polymer thin film is 363μm. The pitch of the capillaries is 363μm same as the capillary outer diameter and the width of the array is 363μm× 16=5.8mm.

On page 16, replace the paragraph beginning at line 26 with the following:

Fig. ~~18~~ 17 shows a signal intensity distribution for the 16 pieces of capillaries in the embodiment 1 above. As will be seen from Fig. ~~18~~ 17, when the laser beam is introduced only at one side face of the capillary array, variations of signal intensities among the 16 pieces of capillaries are enlarged. According to the present embodiment, the laser beams are introduced from both side faces of the capillary array, thereby, the dispersion of the signal intensities from the 16 pieces of capillaries is reduced.

On page 17, replace the paragraph beginning at line 9 with the following:

Fig. 1 shows a skeleton diagram of embodiment 2 according to the present invention, in which only the vicinity of the detection portion of the capillary array and the laser beam introduction route thereof are illustrated and the illustration of the elements such as a shutter and a filter used for the laser beam is omitted. The structure of the capillary array in embodiment 2 is identical to that in embodiment 1. Further, the name of parts and the definition of terms in the present embodiment are the same as those in embodiment 1 if not otherwise defined. A laser beam 40 is equally divided into two by a half mirror 41 and these two laser beams are irradiated to a capillary array from both side faces thereof via mirrors 52. The reflection light by the half mirror 41 is identified as laser beam 43 and the transmitted light is identified as laser beam 44. The condenser lens for the laser beam 43 is identified as a condenser lens 45 and the condenser lens for the laser beam 44 is identified as a condenser lens 46.

On page 26, replace the paragraph beginning at line 24 with the following:

Further, like the embodiment 1, at the laser beam emission port of the laser beam source a pin hole plate 32 having a pin hole 34 of 1.4mm diameter is disposed, light spots of the transmission lights 100 and 103 respectively corresponding to the laser beams 44 and 43 which have returned to the laser beam source after transmitting the capillaries are observed as illustrated in Fig. 7C. Likely, light spots of reflected lights 104 and 105 from the capillaries are observed on the pinhole plates 32 as illustrated in Figure 7C. As will be seen from the light intensity distribution on a broken line 102 in Fig. 7C as illustrated in Fig. 7D, according to the present embodiment, a returning of the highest intensity components of the transmission light through the capillaries to the laser beam source is prevented. With the present embodiment, the intensity of the returning light is reduced, thereby, an instability of the laser oscillation is prevented.

On page 33 replace the paragraph beginning at line 13 with the following:

Further, in the present embodiment, since the offset angle of the two laser beams is not zero, the following effect can be observed. Due to the inherent characteristic of a granting a formed image 141 on the CCD of a monochromatic emission light source 140 which is in parallel with the grooves in the grating distorts toward long wavelength as positions move away from the center 142 of the image (which corresponds to the center axis of the fluorescent condenser lens 54 in the embodiment 2) as illustrated in Fig. 12A. Fig. 12B is a skeleton diagram of the intensity distribution 143 of the incident laser beam onto the capillary array according to the present embodiment. The grating and the CCD are arranged in such a manner that the grooves of the grating and grids 145 of pixels in the CCD are parallel with the laser optical axis as in embodiment 2.